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FARM VIEWS AND NOTES

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FARM VIEWS AND NOTES ON SOIL-BUILDING

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ALABAMA GIRLS TECHNICAL INSTITUTE

MONTEVALLO, ALABAMA

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PREFACE

The purpose of this little bulletin will be to show some of the work the school is doing for its students and for the community in developing the farm lands owned by the school.

The aim of this agricultural work is:

1st. To furnish the students with fresh vegetables, meal and other products which are not at all times procurable and an adequate supply of wholesome milk produced under sanitary conditions which would otherwise be difficult and expensive to obtain.

2nd. To give the students in agriculture a means of first hand observation and study of farm crops and farm methods.

3rd. To serve as an object lesson for the community farmers in stock raising, soil improvement, and other essential factors in diversified farming.

4th. To render the school grounds more attractive and more inviting as a whole by filling gulleys, cleaning up the briars and brush, giving the red galled places a coat of green and making the waste places productive.

The work was started five years ago under the direction of the Department of Science. The school owned two tracts of land,—a fifty-acre tract of worn-out, turned-out "waste" land surrounding the campus on two sides and a farm of one hundred and fifty acres that had endured the tenant system ever since it had been a farm, some seventy-five years.

The following pictures with descriptive matter show some of the improvements made and results obtained on this land.

Farm Views and Notes

BUR CLOVER AND OATS

This picture shows one way in which the "waste" land on the farm was built up. Bur clover is bound to become one of the important crops in the new era of farming which is dawning upon us, or rather being forced upon us. One of its greatest advantages is that we can't sell it off the farm for money. It will put fat on our cattle, or milk in the pail or rapid growth on our hogs, and at the same time put nitrogen in our soil and cut down our fertilizer bill. But we can't gather it off our land (as we are wont to do our crops) and swap it directly for dollars. Bur clover is the most honest crop I know—it will not under any circumstances grow on land and not return to the land more than it took from it. The seed is the only part of the plant you can sell. And the seed are by no means a poor money crop. We have gathered over forty bushels of seed from one-half acre and their market price is usually around $1.50 per bushel. The greatest objection we have to bur clover is its slowness in getting a stand. You will have to bear with it a year or two, and on poor land longer, and give it a chance to

establish itself. Once this is done, it will continue to grow and can be used in most any kind of rotation without destroying it.

It comes up in the fall and in an open winter will give some pasture in December. As a usual thing it can be relied upon to furnish grazing through February, March and April, the three months during which pasture is scarcest.

On a Bermuda grass sod with Lespedeza bur clover will make the nearest permanent pasture to be had in this latitude.

VETCH AND OATS

Here is another combination of plants that has helped in giving good returns without robbing the soil—hairy vetch and oats.

To get best results this crop should be seeded in September or early October. This will enable the vetch to get well established before the winter freezes come which might destroy it. We usually seed by scattering the vetch broadcast about twelve pounds to the acre and following with the oat drill which puts in the oats and fertilizer. We have also mixed the vetch seed with the fertilizer and thus sown both kinds of seed and the fertilizer at one operation.

This crop will furnish some grazing in January and February if the soil is not too wet for the stock to go on it. It is a valuable hay crop if cut when the oats are in the dough stage. One advantage of using it for hay is that the land can be gotten in shape for a crop of cow peas or soy beans to follow. Or, again, it makes a valuable grain and forage crop when threshed. The straw and the vetch vines properly stacked or housed produce a forage much relished by cattle and has about the same feeding value as average Johnson grass hay. We have carried yearling cattle through the winter on vetch and oat straw. True, they did not come out in the spring and show shape; nor would we recommend this method of wintering cattle, but the point is they came through the winter on oat and vetch straw.

Our last year's crop of vetch and oats was planted in early October following a crop of corn which had been cut off for ensilage in September. The land was double cut with a three horse disc harrow. Twelve pounds of hairy vetch and one and one-half bushels of oats per acre were seeded with a grain drill. Two hundred pounds of 16% acid phosphate were drilled in with the seed. In March the crop was top-dressed with fifty pounds of nitrate of soda per acre. The yield was forty-two bushels of oats per acre and one and one-half tons of vetch and oat straw per acre, valued at $9.00 per ton. The oats valued at fifty cents per bushel gave a gross return of $33.50 per acre and a crop of cow pea hay which followed left a satisfactory margin of profit and the land in better condition.

Making An Oat Crop

The field shown in this picture was planted to oats the first year the school took over the farm and produced a crop of about fifteen bushels per acre. The crop grown in the picture shown, three years later, produced fifty-three bushels per acre, and in addition a crop of ensilage corn and peas averaging six tons per acre was grown on a portion of the field the same season after the oats. This is bottom land over most of which a tough red clay had washed.

Following the first crop of oats the field was planted to cow peas and soy beans. The hay was cut high and a second growth of the stubble turned under in the fall. Manure was scattered on a thin, gravelly rise in the field (about eight loads per acre) and the tough clay portion was subsoiled. In the spring the field was planted to corn and peas except the upper and poorer portion which went into soy beans. This crop was cut for ensilage and in the fall quite a lot of vegetable matter was turned under and the field put to oats again. In the winter a light top dressing of manure went over part of the oats.

Following the oats the third year the field in part went back into corn and peas for the silo and part of it into a mixture of peas and soy beans. The crop of oats shown in the picture then followed this crop in the fall and in the spring of the fourth year threshed off of the twenty acres 1,065 bushels of oats. This is of course no unusual crop of oats. But it is better than fifteen bushels and each year except one the land was producing two crops. The explanation is simple enough—deep ploughing, some manure, a little acid phosphate and above all some vegetable matter, and planting good seed in the fall of the year. The details of

making this particular crop were briefly this: The land was double cut with a three-horse disc harrow, weighted with an extra 200 pounds. In early October it was seeded at the rate of one and one-half bushels of 100 to 1 oats drilled in with 200 pounds of 16% acid phosphate per acre. It was grazed at times through March when it was dry enough for the cattle to go on the land. The crop was cut and shocked the middle of May and threshed the first of June.

PEAS FOLLOWING OATS

We hear a great deal about following small grain with a second crop of some legume such as peas or beans. It is a wise thing to do, but by no means an easy thing to do, especially on stiff, red clay soil. The oat, or other small grain crops, are cut from the middle to the last of May. The weather is hot; cultivation of the other crops is pressing; frequently it is dry and the land bakes and hardens quickly; care must be taken not to hurt the work stock; the shocks of grain are on the land and no time to stop and thresh it and no sheds to store and not a hand on the place that knows how to stack it to keep it from rotting, even if there was time to haul it off the field. This is a common dilemma to face frequently when we come to put peas after oats, and this is usually the season our best mule gets a sunstroke.

A crop of peas followed the crop of oats shown in the preceding picture and the following plan was used: The field was laid off in "lands" for the binder according to the nature of the soil. That is the more porous, open soil was cut in one land and the stiff clay soil in another. On the loose land the grain was placed in wide shock rows and the shocks placed close together in a straight row. This gave the disc harrow a chance to go right into the field without being interfered with by the shocks, except of course in the row where the shocks were placed. This ground was disced before it had an opportunity to become hard.

A different method had to be followed on the red clay land. It was already hard, and a few hours' sunshine after the oats were off made it much harder. So a man followed along behind the binder and threw the bundles over out of the way of the disc harrow which came immediately after the binder as shown in the preceding picture. In this way the top of the ground was pulverized though very shallow. This was enough, however to prevent evaporation of the soil moisture and to retain the moisture from the next shower. Both these agencies furnished enough moisture to allow a second discing which went to some depth. Immediately after deep furrows with a narrow plow were laid off to plant the peas in. After the next rain the peas were given a deep plowing (whether they were up or not). Those which had come up were plowed with a double foot plow run deep followed by a shallow tooth cultivator. Those that had not come up were worked with a double foot plow followed by a tooth harrow. The peas were planted in rows three feet wide with a planter which distributed at the same time 150 pounds of acid phosphate per acre. After the first working mentioned above they were run through four times during the drouth of July with a shallow cultivator one time to the row.

Making 75 Bushels of Corn Per Acre

This corn crop was started four years ago. The four and one-half acre field presented quite a variety of conditions. The upper side was covered with two feet of red clay washed from the hill above. The lower side was a boggy, crawfish swag. One end was a slate outcrop. The other end was a deep loam. The whole was covered with briars, wild plums and other growth and a fair sized gully zig-zagged diagonally from the upper corner to the boggy land.

The land was cleaned up in the fall and winter plowed. It was re-turned in the spring and planted to corn and peas. The first crop was spotted—starved on the clay by a drouth; drowned out on the bog by a few showers, and pretty good on the loam end and on a strip between the clay and bog.

In the fall, which happened to be dry, the field was turned and subsoiled and a ditch plowed out from the bog to a lower ditch bed. Oats and vetch were planted in December. They made small growth and were pastured in April, and the land was prepared for soy beans. The crop was good and fairly uniform. In the fall oats were planted again and pastured off. Some manure was scattered on the ground and turned under in the spring for a crop of corn and peas. This crop

was good except in the worst of boggy land. The corn was cut for ensillage, the peas left on the land.

In the fall, before the corn shown in the picture was planted, a tile drain was laid diagonally across the field through the center of the bog. Only a depth of two feet could be secured through the low land. This depth was increased to four feet as the fall of the land would permit it. The land was then plowed in the winter and left rough for the benefit of the freezes. The clay portion was given a light coat of manure and in the spring the land was made mellow with the disc harrow. Furrows for the corn were laid off with a middle "buster" five feet apart and planted in early May. The corn was spaced eight to ten inches and a fine stand secured. No fertilizer was applied in the row. The first working was with a cultivator, which threw some dirt into the furrow. The next working was in ten days or so with a harrow which leveled up the soil. When the corn was knee high the fertilizer (300 pounds acid phosphate and 50 pounds muriate of potash) was applied broadcast and worked into the soil. The corn made rapid growth and stood the severe drouth of June and July well. A storm the latter part of August blew the crop down badly. The damage to the yield was estimated by the county demonstrator at twenty per cent. The field measured four and one-half acres. The crop was 340 bushels (wagon bed measure) besides fifteen bushels of seed corn and several bushels of roasting ears which had been gathered. To be on the safe side we called the yield 75 bushels per acre. The editor of the Southern Agriculturist of Nashville, who saw this corn on July 16th (during the drouth) said in a later issue of his paper: "This is the best field of corn I have seen in Tennessee or Alabama this year." The seed had been selected in the field for four years. An examination of the picture will show a medium sized stalk with two and sometimes three good ears. There were not over twenty barren stalks in the field and these were detassled.

CUTTING ENSILAGE WITH A CORN BINDER

Silo and Ensilage

We consider our silos as the most valuable single item of our farm equipment. Many farmers raising livestock consider the silo too expensive to have. This is a mistaken idea. The most expensive item in livestock farming is feed. A fifty-ton concrete silo can be built by the average farmer for less than the price of a good mule. By average farmer in this connection we mean a man who has sand and gravel within hauling distance and enough mechanical ability to build, say a good wire fence, and enough common sense to follow plain instructions which can be secured from the dairy department at Auburn for the asking.

We built two fifty-ton silos four years ago at a cost of $180.00 each. This cost included gravel and sand at $1.00 per yard and labor at $1.25 per day, also the cost of forms, scaffolding and every other item of expense. This cost of $3.60 per ton capacity was high, because we built expensive and cumbersome forms and did about $50.00 worth of excavating and grading before the silos were started. The average cost per ton-capacity of concrete silos, as worked out by the experiment stations, is $2.35.

The machinery for cutting the ensilage is the most expensive

CONCRETE SILOS ON THE SCHOOL FARM

The small silo on the right is being filled. The large silo on the left is just being completed.

item and as a usual thing is bought by several farmers on the coöperative plan.

We have tried several crops for ensilage: corn and peas, sorghum, soy beans, kaffir corn, Milo maize. All of these crops make ensilage, but there is some objection to each. Corn and peas make fine ensilage and we use it to quite an extent but it is rather expensive to handle as the peas tangle the corn. Sorghum has most too much sugar in this latitude and ferments too strongly for dairy use. Soy beans alone have a tendency to blacken and "mush" in the silo and are rather hard to keep. Kaffir corn and Milo maize leave the land in poor condition, and, while producing a large quantity of matter, make an ensilage of rather low nutritive value as so much of the grain is picked out by birds in this section. Corn or corn and soy beans makes the best ensilage considering ease of handling and feeding value. Those accustomed to making ensilage in a more northern latitude, or those following the advice of northern papers usually make the mistake of cutting the corn too green. Instead of cutting the crop in "hard roasting ear stage or dough stage," according to the advice usually given, the corn should not be cut until the grains are hard and most of the blades are brown. Otherwise the ensilage will be dark and the grains in the silo will distintegrate. This is due to the more active bacterial action which takes place in the silo in our latitude, or to say the same thing in a different way—it is due to the stronger fermentation through which our ensilage goes in this latitude. Ensilage spoils in two ways—by not being packed well in the silo and by gouging it out in uneven layers and not leaving the top level.

It has cost us for four years an average of $2.15 per ton to grow and put ensilage in the silo. Many experiment stations and farmers estimate the cost as being less than this. In comparison with hulls it produces more milk than the hulls. We estimate its value at $5.00 per ton and charge the cows that price for it.

PART OF THE SCHOOL HERD ON PASTURE

The School Herd

It is practically impossible to build up farm land economically without livestock. It is practically impossible to profitably follow diversified farming (concerning which we have much advice from the banker and the baker and the candle stick maker) without livestock. With livestock to consume some of the products of diversified farming which would otherwise go to waste, this method of farming begins to have a purpose and the land begins to improve rapidly.

The school bought twenty grade cows and a pure-bred sire in 1910. Later three registered cows were bought. This number has been increased by raising calves and buying an animal occasionally until the herd now numbers forty-six milk cows and thirty-two head of young animals ranging from two to eighteen months old.

A daily record of the milk production of each cow is kept. In 1910 we set a standard for each cow to come up to or else go to the butcher pen. This standard was 3,000 pounds of milk per year, equivalent to about 365 gallons. This looks rather low but when we remember that the average cow in the state produces less than 2,000 pounds per year, this standard looks better. Four of our twenty cows went to the butcher. Others were bought and the herd increased to thirty-five and the goal set for this year was 3,300 pounds. Five or six cows failed to reach it and the butcher got them. Every year our standard of milk production is raised and the cow that stays in our herd must reach it.

The cows in the opposite picture with the exception of three or four new ones have all produced 4,000 pounds of milk per year—some of them 7,000 pounds—and next year they must each produce 4,200 pounds or leave the herd. We make no exception save with heifers calving the first time. Even if a 6,000-pound cow should fail to calve one year and falls below the mark she would have to go because it costs $50.00 to feed her and a profitable dairy can keep no star boarders. Our ultimate goal with the Jerseys will be 5,000 pounds of milk per year. We can then produce milk at around ten cents per gallon.

The school has recently added some Holstein stock; six grade cows and a pure-bred male. The purpose in view is to gradually develop a herd of pure-bred Jerseys and a herd of pure-bred Holsteins and then keep the herd which proves the most profitable and best suited to our needs. So we have a twenty-year problem ahead of our dairy herd.

INTERIOR DAIRY BARN

Dairy Barn

In order to produce sanitary milk cleanliness must be observed. To produce clean milk in a dirty barn is almost impossible. To keep a barn clean is rather difficult and very expensive unless the barn is built in such way as permits of its being kept clean rather easily. The picture on the opposite page gives a general idea of the construction of our barn. The width is 35 feet, with an eight-foot passage way between the cows which face toward the windows. The milk room and separator room are at the front on either side the passage. To the rear is the feed room, the length over all being one hundred feet. The silos and feed bins are at the junction of the barn and feed rooms. The main cow barn accommodates 38 cows. Underneath the feed room is a bank barn constructed of concrete which holds 18 cows. The floor is of concrete and a concrete wall runs up three feet from the floor upon which the superstructure of wood sets. The barn is weatherboarded, ceiled and painted inside and out. Iron stanchions and stalls are used and the cow comes in contact with no wood.

Ventilation is secured by ample window space and top ventilators. The manure gutters are cleaned and the floor washed with a hose twice daily, except when the cows stay in the barn at night it is washed out once a day. The cows are bedded on saw dust and are groomed daily. This saves on the feed bill.

Immediately after milking the milk of each cow is weighed, recorded on the monthly record sheet and taken to the milk room. The weighing and recording consumes about ten minutes at each milking. This is the most profitable time spent in the dairy. The milk is strained through a double sanitary straining cloth, cooled, bottled and sent at once to the milk refrigerator at the dining hall, from when it goes directly to the tables in bottles. In this manner the students are furnished wholesome and sanitary milk, every step of the production of which is under supervision of the school officials.

An average of 60 gallons of $4\frac{1}{2}\%$ milk are furnished the dining room daily at a cost of around 23 cents per gallon. Of course we could make cheaper milk for less money.

AGRICULTURAL EXHIBIT OF THE ALABAMA GIRLS TECHNICAL INSTITUTE
At the Alabama State Fair, Birmingham, 1914. Third Premium

Farm Exhibit

It is the policy of the school farm to coöperate in any plan or movement undertaken in the interest of agriculture. We have taken an active part in organizing and supporting the county Fair held at this place. We believe it helpful to come into competition with products of other farms. It is stimulating to endeavor to grow something a little better than the other fellow. If the other fellow grows something a little better than we do then it is helpful to learn how he does it. So we win regardless of where the blue ribbons go, and, if we will, we win most when we lose.

For the first time, this year the school put on a farm exhibit at the State Fair held in Birmingham. Among fourteen exhibits in competition the school farm came third. The picture on the opposite page gives some idea of the variety and quality of the products shown.

Among the garden products were, sweet and Irish potatoes, tomatoes, peppers, turnips, radish, okra, corn, onions, egg plant, beans, peas, leeks, collards, parsnips, squash, and rutabagas.

Among the can goods were okra, tomatoes, beans, corn, peaches, and strawberries. The strawberries were from a crop of 700 gallons grown in the school garden and picked by the students. In addition to the can goods mentioned there was quite a variety of canned goods in the exhibit which were put up by students in the Domestic Science Department as a part of their regular course in that work.

Among the field products shown were corn, oats, wheat, kaffir corn, Milo maize, soy beans, velvet beans, cow peas, oat and vetch hay, oat and bur clover hay, Johnson grass hay, cow pea hay, shredded fodder, oat straw, Lespedeza hay, pumpkins and ensilage. It will be noticed that most of our farm crops are feeding crops and that cotton is not in the list. There was also a display of milk and butter from the dairy.

The exhibit was incomplete in that it showed no cured meats. The school has a herd of Berkshire swine, most of which are pure-bred. About four thousand pounds of meat, fresh and cured, is made yearly. A number of pure-bred pigs are disposed of each season to nearby and distant farmers at reasonable prices.